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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/599,208

09/22/2006

Franck Delahaye

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EXAMINER

ANGADI, MAKI A

ART UNIT

PAPER NUMBER

1792

MAIL DATE

DELIVERY MODE

12/08/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/599,208	<b>Applicant(s)</b> DELAHAYE, FRANCK	
	<b>Examiner</b> MAKI A. ANGADI	<b>Art Unit</b> 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 01 September 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Specification*

1. Examiner acknowledges the amendment to the title of the invention and Figure 1 and objection is therefore withdrawn.

### *Claim Rejections - 35 USC § 112*

2. Examiner acknowledges the amendments to claim 1 and claim 7 to overcome the rejection under 35 U.S.C 112, 2nd paragraph. The rejection is withdrawn.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiraishi et al. (US 6,506,260).

**As to claims 1-6, 10-15 and 17, 19-23, 26**, in a method of cleaning photovoltaic module (solar cells), Hiraishi discloses treating one side of silicon wafers in a liquid bath, characterized in that the under side of the silicon wafers is treated in the liquid bath without the top side previously having been protected or masked. The silicon wafers may be processed or cleaned continuously (col.7, lines 32-33) using apparatus illustrated in Fig.1 (col.6, lines 42-45) continuously in a once-through process. The undersides of the silicon wafers may be lowered into the liquid bath. The silicon wafers may be conveyed horizontally through

rollers (15a, Fig.1) through the treatment liquid located in the liquid bath without protective mask. The liquid bath used is a tank whose peripheral edge may be lower than the level of the treatment liquid. The edges of the silicon wafers may be also treated. The production line may comprise a multiplicity of conveyor rolls. The conveyor rolls may be in each case arranged on axle elements. See abstract, col. 1, lines 19-23, 62-63, and Fig. 1 and its description in spec.

***As to claims 7-9, 16 and 18, 24-25,*** Hiraishi discloses treating one side of silicon wafers in a liquid bath, characterized in that the under side of the silicon wafers is treated in the liquid bath without the top side previously having been protected or masked. The silicon wafers may be processed continuously in a once-through process. The undersides of the silicon wafers may be lowered into the liquid bath. The silicon wafers may be conveyed horizontally through the treatment liquid located in the liquid bath. The liquid bath used is a tank whose peripheral edge may be lower than the level of the treatment liquid. The edges of the silicon wafers may be also treated. The production line may comprise a multiplicity of conveyor rolls. The conveyor rolls may be in each case arranged on axle elements. See abstract, col. 1, lines 19-23, 62-63, and Fig. 1 and its description in spec.

Hiraishi discloses treating (cleaning) silicon wafers in a liquid bath. Since the cleaning and etching may use the same process and system with different chemicals e.g. pure water or alternatively, acetone, alcohol, Freon or oxidizing acid solution (col.9, lines 18-20) in treatment, it would have been obvious to one

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with ordinary skilled in the art at the time of the invention was made to vary chemical composition for treatment so as to etch the silicon wafers if the etching is required for the product.

The above cited claims differ from the prior art by specifying well-known features (such as commonly used etchants in claims 7 and 8); use additives for binding the gas formed during the etching so as to avoid or suppress gas bubbles in claims 9 and 18; encapsulate the axle element for the protection in claim 16) to the art of wet cleaning and etching, the examiner takes official notice. A person having ordinary skill in the art would have found it obvious to modify the prior art by adding any of same well-known features to the same in order to provide efficient cleaning or etching with a reasonable expectation of success.

***Claim Rejections - 35 USC § 103***

5. Claims 1-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wandel et al. (US 6,306,224).

***As to claims 1-4, 6, 7, 10-12, 14, 15 and 17, 19-26,*** Wandel discloses treating one side of silicon wafers in a liquid bath, characterized in that the under side of the silicon wafers is treated in the liquid bath without the top side previously having been protected or masked. The silicon wafers may be processed continuously in a once-through process without any protective mask. The undersides of the silicon wafers may be lowered into the liquid bath. The silicon wafers may be conveyed horizontally through the treatment liquid

located in the liquid bath. The edges of the silicon wafers may be also treated. The production line may comprise a multiplicity of conveyor rolls. Etching may be carried out using such as hydrofluoric acid. See col. 4, line 54 through col. 5, and Fig. 1 and its description in spec.

***As to dependent claims 5 and 13,*** since the fluid is continuously circulated and overflows, the fluid level may be adjusted depending on the surface tension of the etching medium used, as such; the liquid bath used is a tank whose peripheral edge may be lower than the level of the treatment liquid.

The above cited claims differ from the prior art by specifying well-known features (such as commonly used etchants in claim 8; use additive for binding the gas formed during the etching so as to avoid or suppress gas bubbles in claims 9 and 18; encapsulate the axle element for the protection in claim 16) to the art of wet cleaning and etching, the examiner takes official notice. A person having ordinary skill in the art would have found it obvious to modify the prior art by adding any of same well-known features to same in order to provide efficient cleaning or etching with a reasonable expectation of success.

***As to claims 8, 9 and 18,*** The above cited claims differ from the prior art by specifying well-known features (such as commonly used etchants in claims 7 and 8); use additives for binding the gas formed during the etching so as to avoid or suppress gas bubbles in claims 9 and 18; encapsulate the axle element for the protection in claim 16) to the art of wet cleaning and etching, the examiner takes official notice. A person having ordinary skill in the art would have found it

obvious to modify the prior art by adding any of same well-known features to the same in order to provide efficient cleaning or etching with a reasonable expectation of success.

### ***Response to Arguments***

6. Applicant's arguments filed on 9/1/2009 have been fully considered but they are not persuasive.

With respect to claims 1 and 10, applicants arguments on page 12 and 13 of the reply asserting that the prior art of Hiraishi and Wandel does not teach that the top side of the wafers which are not to treated are always positioned above the liquid are not convincing. Hiraishi and Wandel disclose in Fig.1 a cleaning apparatus wherein one who is skilled in the art should be able to control the water level so that the wafers which are not to be treated are positioned above the liquid. It is noted that the level and type of cleaning liquid, position of wafers, and oxidizing agents are adjustable parameters which are optimized for the best results of cleaning or etching. The reference of Doolittle is removed from the above office action and arguments are moot.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MAKI A. ANGADI whose telephone number is (571)272-8213. The examiner can normally be reached on 8 AM to 4.30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine G. Norton can be reached on 571-272-1465. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR



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system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

//Maki A Angadi/  
Examiner, Art Unit 1792

/Nadine G Norton/  
Supervisory Patent Examiner, Art Unit 1792